

Change to Conservation Measure for the Colorado River cotton rat
Lower Colorado River Multi-Species Conservation Program
Program Decision Document 14-003

Steering Committee Motion

The Steering Committee approves Reclamation's recommended changes to conservation measure CRCR2 to include cottonwood-willow and mesquite habitats, specifically:

CRCR2 –Create 125 acres of Colorado River cotton rat habitat. Of the 512 acres of marsh to be created to create Yuma clapper rail habitat (Section 5.7.1), or the 5,940 acres of cottonwood-willow and 1,320 acres of honey mesquite III to be created as habitat for covered species, at least 125 acres will be designed to also provide Colorado River cotton rat habitat in Reaches 3 and 4 near occupied habitat (Figure 5-2). Additional habitat may be provided by marsh vegetation that establishes along margins of the 360 acres created backwaters (Section 5.4.3.4).

Current Conservation Measure

5.7.10.2 Conservation Measures (LCR MSCP 2004)

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Justification

When the LCR MSCP was finalized in 2005, the species distribution and habitat requirements for Colorado River cotton rat were based on the current understanding of their habitat use at that time. Recent research studies, and opportunistic and controlled intuitive monitoring data collected by Reclamation and other parties have provided landscape level habitat information necessary to design and manage created habitat for the Colorado River cotton rat. The research and controlled intuitive monitoring conducted systemwide and at conservation area has recorded the Colorado River cotton rat occupying a mosaic of cottonwood-willow and mesquite land cover types with a substantial vegetative ground cover and suggests that this species is not restricted to marsh habitat. For example, the Palo Verde Ecological Reserve and Cibola National Wildlife Refuge Unit 1 Annual Reports have documented Colorado River cotton rats occupying a mosaic of cottonwood-willow and honey mesquite habitat in California and Arizona for several years.

MONITORING RESULTS FOR COLORADO RIVER COTTON RAT

The Colorado River cotton rat is not a Federally listed threatened or endangered species. The Colorado River cotton rat is a species of special concern in the state of California. Since actions covered under the LCR MSCP were expected to affect 67 acres of Colorado River cotton rat

habitat on the lower Colorado River (LCR), two conservation measures were developed and listed in the Habitat Conservation Plan for this species. Conservation Measure CRCR 2, which calls for the creation and management of 125 acres of Colorado River cotton rat habitat within Reaches 3 and 4, was based on the limited data available on the Colorado River cotton rat habitat before 2005.

Both the Colorado River and Yuma hispid cotton rats were historically found in dense marsh habitat. Since implementation of the LCR MSCP, opportunistic monitoring and habitat studies have been conducted to determine the landscape level habitat characteristics for the Colorado River and Yuma hispid cotton rats.

Presence surveys for cotton rats began in 2005 to determine what mammal species were present at pre-LCR MSCP conservation areas. In 2005, the Yuma hispid cotton rats were trapped at Pratt Agricultural site in cottonwood-willow land cover types with vegetative ground cover, such as low growing shrubs and tall grasses. Because Yuma hispid cotton rats were found in cottonwood-willow land cover types at Pratt Agricultural, surveys were conducted in similar habitat at Cibola National Wildlife Refuge Unit 1's Nature Trail, a cottonwood-willow mixed mesquite forest, to determine if the Colorado River cotton rats were utilizing the same type of habitat as the Yuma hispid cotton rat at Pratt Agricultural. Colorado River cotton rats have been documented in cottonwood-willow and honey mesquite habitat every year since 2005 at Cibola National Wildlife Refuge Unit 1's Nature Trail. The species has been found in areas in shrubs and tall grasses with mesquites, cottonwoods, and willows. Also, a population of Colorado River cotton rats has been documented at the Cottonwood Genetics garden located within the Cibola National Wildlife Refuge Unit 1 since 2006. The Cottonwood Genetics garden has tall grasses with cottonwoods. Surveys have been conducted and presence has been confirmed for Colorado River cotton rat at Cibola Valley Conservation Area, Palo Verde Ecological Reserve, Beal Lake Conservation Area, Big Bend Conservation Area, and at Pintail Slough in Havasu National Wildlife Refuge in land cover types ranging from marsh, cottonwood-willow and honey mesquite. Table 1 below documents locations where Colorado River cotton rats have been found present since 2007.

Table 1. Colorado River cotton rat presence in marsh, cottonwood-willow and honey mesquite

Location	Habitat Type	2007	2008	2009	2010	2011	2012	2013
Cibola Unit 1 ¹	CW and HM	X	X	X	X	X	X	X
CVCA (Phase 1, 2 and/or 3) ¹	CW and HM	ND	ND	D	X	X	X	X
PVER (Phase 4 and 5) ¹	CW and HM	NS	NS	NS	X	X	X	X
PVER (accretion bench) ¹	Marsh	NS	X	X	X	X	X	NS
Pintail Slough (Havasut Refuge) ¹	CW and HM	NS	NS	X	X	X	X	X
Beal Lake Conservation Area ¹	CW and HM	ND	ND	ND	X	X	X	ND
Big Bend Conservation Area ¹	Marsh	NS	NS	NS	ND	NS	X	X

NS=Surveys not conducted

X=present

ND=Surveys conducted and CRCR Not Detected

¹Bureau of Reclamation reports, published and unpublished data

A study to locate and evaluate the habitat for the Colorado River and Yuma hispid cotton rats began in 2007. Species surveys were conducted from October 2007 through March 2009, in areas consistent with known cotton rat habitat preferences, such as tall grasses, and shrubs within 1-2 m. in height. The study indicates that the structure characteristics of the habitat are a driver as opposed to the vegetation type. The Colorado River cotton rats will use habitat with open canopies of cottonwood-willow (or mesquite) with a thick understory of tall grasses and shrubs, to edges of marsh habitats composed of a variety of plant species that provide the adequate habitat structure.

The designation of marsh habitat by the HCP as the land cover type for the Colorado River cotton rat describes only a portion of the type of habitat this species will utilize. The surveys conducted since 2007 have provided data supporting Colorado River cotton rat's use of cottonwood-willow land cover types in addition to marsh. Therefore, adding cottonwood-willow and mesquite habitat types to the CRCR2 conservation measure will better reflect the species ecology.

The California Endangered Species Act (CESA) 2081 permit issued to the LCR MSCP permittees also lists conservation measures for the Colorado River cotton rat. Of the 240 acres of marsh habitat in California, at least 58 acres shall support the Colorado River cotton rat (CESA Incidental Take Permit 2081-2005-008-06). The LCR MSCP will continue to manage 58 acres of marsh in California to meet CESA requirements for Colorado River cotton rat.

Literature Review

Cameron, G.N., and S.R. Spencer. 1981. *Sigmodon hispidus*. Mammal. Species No. 158. 9 pp.

Dodge, C. 2006. Summary of Preliminary Mammal Trapping Efforts at Cibola National Wildlife Refuge and at the Pratt Agricultural Restoration Site 2004-05, Bureau of Reclamation, prepared for the Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.

Hill, J. 2011. Small Mammal Colonization at Habitat Creation Areas along the Lower Colorado River: Fiscal Year 2011. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.

Lower Colorado River Multi-Species Conservation Program. 2004. Lower Colorado River Multi-Species Conservation Program: Volume II. Habitat Conservation Plan. Final. December 2004.

Neiswenter, S. 2011. Modeling Microhabitat and Survival Estimates of *Sigmodon arizonae plenus* along the Lower Colorado River 2010 Report. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.

Neiswenter, S. 2010a. Diagnosis, Distribution, and Habitat Attributes of Two LCR MSCP Covered Species: The Colorado River Cotton Rat (*Sigmodon arizonae plenus*) and the Yuma Hispid Cotton Rat (*Sigmodon hispidus eremicus*). Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.

Neiswenter, S. 2010b. Small Mammal Colonization at Habitat Creation Areas along the Lower Colorado River: 2010. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.

Neiswenter, S. 2009. Small Mammal Colonization at Habitat Creation Areas along the Lower Colorado River: 2009. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Multi-Species Conservation Program Office. Boulder City, NV.